

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all previous versions and listings of claims in the present application.

LISTING OF THE CLAIMS:

1. (Currently Amended) ~~A computer implemented document classification apparatus, comprising:~~
 - ~~a feature extractor that extracts a plurality of features from a document;~~
 - ~~a classifier that processes the document based on the extracted features in a knowledge acquisition mode in which an association of a classification with each document is added incrementally to a knowledge base and in a document classification mode in which the classifier, using the knowledge base, determines a predicted classification for the document, the classifier being switchable between the modes under user control for each document; and~~
 - ~~a router that routes the document to one of a plurality of destinations in dependence upon the classification, wherein the classification has associated therewith a confidence value,~~
 - ~~and wherein the router compares the confidence value to a threshold, the router making at least one of an automatic routing decision and a manual routing decision in dependence upon the comparison,~~
 - ~~and wherein the threshold is adjustable to match a desired confidence value to allow transition from a state where manual routing is favored to a state that favors automatic routing,~~
 - ~~and wherein at least one of a misrouted document is sent to a correct destination by a manual routing and the classifier being switched to the knowledge acquisition mode when a document has been determined to be misrouted,~~

~~and wherein a rule insertion is performed in the knowledge acquisition mode in which a plurality of features are input by a user to the classifier together with a classification with which the features are associated~~

A computer implemented document classification apparatus, comprising:

a classifier, comprising a document classifier and an adaptive resonance associative map (ARAM) classifier, that processes the document based on extracted features in a knowledge acquisition mode in which an association of a classification with each document is incrementally added to a knowledge base and in a document classification mode in which the ARAM classifier, using the knowledge base, determines a predicted classification for the document; and

a router that is configured to route the document to one of a plurality of destinations based upon the classification associated with a confidence value, and is configured to compare the confidence value to a threshold value;

wherein the classifier is configured to correctly classify a misrouted document by switching between the document classification mode and the knowledge acquisition mode based upon a learn instruction, an insert instruction, or a classify instruction, inputted by the user;

wherein, when the confidence value exceeds the threshold value, the document is routed to a destination specified by the predicted classification for automatic routing without the user inputting classification rules for the document; and

wherein, when the confidence value does not exceed the threshold value, the document is determined to be a misrouted document, the user determines the correct classification of the document and the document is forwarded to a learning module with the correct classification;
and

wherein, when the learning module determines a contradiction between the predicted classification and the correct classification, the learning module revises the knowledge base automatically without the user inputting classification rules for the document.

2. (Previously Presented) The computer implemented document classification apparatus as claimed in claim 1, wherein the classifier comprises a supervised adaptive resonance theory (ART) system.

3. (Previously Presented) The computer implemented document classification apparatus as claimed in claim 2, wherein the system comprises an ARTMAP system.

4. (Previously Presented) The computer implemented document classification apparatus as claimed in claim 2, wherein the system comprises an adaptive resonance associative map (ARAM) system.

5-8. (Canceled)

9. (Previously Presented) The computer implemented document classification apparatus as claimed in claim 1, wherein one of the plurality of destinations is a system administrator workstation where the router is arranged to route the document for manual routing after the manual routing decision.

10. (Previously Presented) The computer implemented document classification apparatus as claimed in claim 1, wherein the features are formed into a feature vector for input to the classifier.

11. (Previously Presented) The computer implemented document classification apparatus as claimed in claim 1, wherein the features comprise at least one of classification-associated words and phrases which may appear in the document.

12. (Previously Presented) The computer implemented document classification apparatus as claimed in claim 1, wherein the feature extractor is arranged to provide a measure of the frequency of occurrence of the features in the document.

13. (Previously Presented) The computer implemented document classification apparatus as claimed in claim 1, wherein the destinations include a system administrator workstation to which the other destinations are connected, misrouted documents being sendable by the other destinations to the system administrator workstation for manual routing.

14. (Previously presented) The computer implemented document classification apparatus as claimed in claim 13, wherein the system administrator workstation is connected to the feature extractor and the classifier, the arrangement being such that a misrouted document, in association with an actual classification supplied at the system administrator workstation, is processed in the knowledge acquisition mode to add the association of the actual classification with the misdirected document to the knowledge base.

15-18. (Cancelled)

19. (Currently Amended) ~~A computer implemented document classification apparatus, comprising:~~

~~a feature extractor that extracts a plurality of features from a document;~~

~~a classifier that processes the document based on the extracted features in one of a knowledge acquisition mode or a document classification mode and outputs a predicted classification and a confidence value, wherein the classifier is switchable between the knowledge acquisition mode or the document classification mode for each document based on user input;~~

~~a router that operates in one of an automatic or manual mode to route the document to at least one of a plurality of destinations, wherein the router mode is switched between the automatic mode or the manual mode based on a comparison of the confidence value to a threshold,~~

~~and wherein at least one of a misrouted document is sent to a correct destination by a manual routing and the classifier being switched to the knowledge acquisition mode when a document has been determined to be misrouted,~~

~~and wherein a rule insertion is performed in the knowledge acquisition mode in which a plurality of features are input by a user to the classifier together with a classification with which the features are associated~~

A computer implemented document classification apparatus, in which, when a confidence value is below a threshold value, the document is determined to be misrouted, a user determines the correct classification of the document and the document is forwarded to a learning module with the correct classification, the classification apparatus comprising:

a classifier, comprising an adaptive resonance associative map (ARAM) classifier, that is configured to correctly classify the misrouted document by switching between a document classification mode and a knowledge acquisition mode based upon a learn instruction or a classify instruction, input by the user,

wherein the user instructs the document classifier to implement a learning sub-mode of the knowledge acquisition mode, and inputs a correct classification for the misrouted document to the ARAM classifier so that the misrouted document and the correct classification, associated with the misrouted document, are added to the knowledge base,

wherein, when the learning module determines a contradiction between the predicted classification and the correct classification, the learning module revises the knowledge base automatically without the user inputting classification rules for the document.

20. (Previously Presented) The computer implemented document classification apparatus according to claim 19, wherein the threshold is adjustable to match a desired confidence value to allow transition from a state where manual routing is favored to a state that favors automatic routing.

21. (Previously Presented) The computer implemented document classification apparatus the according to claim 19, wherein the user is a system administrator workstation coupled to the feature extractor and the classifier.

22. (Cancelled)

23. (Previously presented) The computer implemented document classification apparatus according to claim 19, wherein when a document has been determined to be misrouted, the system administrator classifies the misrouted document to provide an actual classification.

24. (Previously Presented) The computer implemented document classification apparatus according to claim 23, wherein the classifier adds an association to the actual classification.

25. (Cancelled)

26. (New) The computer implemented document classification apparatus according to claim 1, wherein the ARAM classifier derives the confidence value based on either a distributed category prediction strategy or a voting strategy.

27. (New) The computer implemented document classification apparatus according to claim 1, wherein the document classifier adjusts an input baseline vigilance parameter and an output vigilance parameter of the ARAM classifier, based on the instruction selected by the user.

28. (New) The computer implemented document classification apparatus according to claim 1, wherein the ARAM classifier is configured to ensure that a correctly classified document cannot be later determined to be a misrouted document.

29. (New) The computer implemented document classification apparatus according to claim 28, wherein, when a rule input by the user contradicts a previous rule in the knowledge base, the ARAM classifier executes the previous rule in the knowledge base in order to avoid inconsistent classifications.